CLAIMS

1. A system for managing calculation expressions, comprising means for showing one or more arboreal graphical representations, wherein an arboreal graphical representation is an entity that shows a calculation expression in the form of a tree, and wherein there might exist different types of arboreal graphical representations.

2. A system as claimed in claim 1, further comprising means for editing said one or more arboreal graphical representations, wherein said editing might comprise one or more of the following actions: (1) creating after blank situation, (2) modifying, (3) creating after blank situation and modifying, (4) another type of action.

3. A system as claimed in claims 1 or 2, wherein
   − said means for generating one or more graphical representations and said means for editing graphical representations are characterized because they are implemented in a computer system,
   − said one or more graphical representations are shown on the screen of said computerized system, and
   − optionally, said system might comprise additional means for emphasizing different parts of said one or more graphical representations, wherein said different parts might be for example tree nodes, terms, elements or other parts.

4. A system as claimed in claim 1, wherein one of said graphical representations is a TOWER STRUCTURE, wherein said tower structure is characterized by the following:
   − the nodes of the tree are arranged in vertical fashion, some nodes being located over other nodes, and
   − said system comprises means to indicate which nodes are the parent of which nodes.

5. A system as claimed in claim 1, wherein one of said graphical representations is a VERTICAL STRUCTURE, wherein said vertical structure is characterized by the following:
   − the nodes of the tree expand in vertical fashion, so that if a node is at a given position, its child nodes are located at a lower position, and
   − it comprises means for indicating which nodes are the parents of which nodes.

6. A system as claimed in claim 1, wherein one of said arboreal graphical representations is an ESCALATOR STRUCTURE, wherein said escalator structure is characterized by the following:

    −   the nodes of the tree are arranged in different levels of a table, and certain nodes are only visible in certain levels of the table, so that the expression is read by changing levels in the positions where the transitions between nodes take place, and

    −   there might exist a summary cell that contains the total expression.

7. A system as claimed in claim 1, wherein one of said arboreal graphical representations is a HORIZONTAL STRUCTURE, wherein said horizontal structure is characterized by the following:

    −   the nodes of the tree expand in horizontal direction, so that a parent node has a different horizontal position than its child nodes, and

    −   said system comprises means for indicating which nodes are the parents of which nodes.

8. A system as claimed in claim 1, wherein one of said arboreal graphical representations is a LINE STRUCTURE, wherein said line structure is characterized by the fact that the nodes of the tree are marked by using parallel lines that are located under the calculation expression, so that said lines coincide with the different nodes of the tree.

9. A system as claimed in claim 1, wherein one of said arboreal graphical representations is a RELIEF STRUCTURE, wherein said relief structure is characterized by the fact that the nodes of the tree are marked by creating certain areas that are located under the calculation expression, so that said areas coincide with the different nodes of the tree, and wherein said areas might be solid or transparent.

10. A system as claimed in claim 1, further comprising means for applying the feature of GROUPING OF PEERS, which is characterized because said system imposes the condition that the operators that link different sister nodes have the same type.

11. A system as claimed in claim 1, further comprising means for applying the feature of SEQUENCIATION OF NON ASSOCIATIVE OPERATORS, which is characterized by the fact that the system imposes the obligation that the operators that join sister nodes must satisfy the associative property.

12. A system as claimed in claim 1, further comprising means for applying the functionality of EXPLICATIVE TEXT, wherein said functionality is characterized because one or more of the nodes of said graphical representations gets associated to a text that provides a description of said node or nodes.

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13. A system as claimed in claim 1, further comprising means for applying the functionality of INCREMENTAL COMPUTATIONS, where said functionality is characterized by the following:

    − for one or more nodes, it shows a value that is associated to said node or nodes, wherein

10   said value depends on the evaluation of said expression for said node or nodes, and

    − optionally, it might show the evolution of said values in a dynamic fashion as the expression is evaluated.

14. A system as claimed in claim 1, further comprising means for identifying the minimal term

15   of a position, wherein said minimal term might be the implicit minimal term, the explicit minimal term, or both.

15. A system as claimed in claim 1, further comprising means for selecting the parent term of the term that is selected at a given moment.

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16. A system as claimed in claim 1, further comprising means for expanding and collapsing nodes in said arboreal graphical structures.

17. A system as claimed in claim 1, further comprising means for facilitating the construction of

25   formulae for environments such as spreadsheet applications, source code editors, or other environments.

18. A system as claimed in claim 1, further comprising means for facilitating the construction of search strings for environments such as databases, Internet search engines or other

30   environments.

19. A method for managing calculation expressions, comprising the following steps:

    – creating one or more arboreal graphical representations,

    – showing said one or more arboreal graphical representations to the user,

wherein an arboreal graphical representation is an entity that shows a calculation expression in the form of a tree, and wherein there might exist different types of arboreal graphical representations.

20. A method as claimed in claim 19, further comprising the step of editing said one or more arboreal graphical representations, wherein said editing might comprise one or more of the following actions: (1) creating after blank situation, (2) modifying, (3) creating after blank situation and modifying, (4) another type of action.

21. A method as claimed in claims 1 or 2, further comprising the following steps:

    – Showing said one or more graphical representations on the screen of a computerized system, and

    – optionally, emphasizing different parts of said one or more graphical representations, wherein said different parts might be for example tree nodes, terms, elements or other parts.

22. A method as claimed in claim 19, wherein one of said graphical representations is a TOWER STRUCTURE, wherein said tower structure is defined in claim 4.

23. A method as claimed in claim 19, wherein one of said graphical representations is a VERTICAL STRUCTURE, wherein said vertical structure is defined in claim 5.

24. A method as claimed in claim 19, wherein one of said arboreal graphical representations is an ESCALATOR STRUCTURE, wherein said escalator structure is defined in claim 6.

25. A method as claimed in claim 19, wherein one of said arboreal graphical representations is a HORIZONTAL STRUCTURE, wherein said horizontal structure is defined in claim 7.

26. A method as claimed in claim 19, wherein one of said arboreal graphical representations is a LINE STRUCTURE, wherein said line structure is defined in claim 8.

27. A method as claimed in claim 1, wherein one of said arboreal graphical representations is a RELIEF STRUCTURE, wherein said relief structure is defined in claim 9.

28. A method as claimed in claim 1, further comprising the step by which the system requires the user to restructure the calculation expression in order to avoid a situation in which sister nodes are linked by operators that are not of the same type; i.e. said step executes the feature of GROUPING OF PEERS, which is described in claim 10.

29. A method as claimed in claim 19, further comprising the step by which the system requires the user to restructure the calculation expression in order to avoid a situation in which sister nodes have operators that do not follow the associative property among themselves; i.e. said step applies the feature of SEQUENCIATION OF NON ASSOCIATIVE OPERATORS, which is defined in claim 11.

30. A method as claimed in claim 19, further comprising the step of applying the functionality of EXPLICATIVE TEXT, wherein said functionality is described in claim 12.

31. A method as claimed in claim 19, further comprising the step of applying the functionality of INCREMENTAL COMPUTATIONS, where said functionality is defined in claim 13.

32. A method as claimed in claim 19, further comprising the step of identifying the minimal term of a position, wherein said minimal term might be the implicit minimal term, the explicit minimal term, or both.

33. A method as claimed in claim 19, further comprising the step of automatically selecting the parent term of the term that is selected at a given moment.

34. A method as claimed in claim 19, further comprising the steps of expanding and collapsing nodes in said arboreal graphical structures.

35. A method as claimed in claim 19, further comprising the step of assigning the resulting calculation expression to an environment such as spreadsheet applications, source code editors, or other environments.

36. A method as claimed in claim 19, further comprising the step of applying the resulting calculation expression to an environment such as databases, Internet search engines or other environments.

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37. A computer program, characterized by allowing to implement the system of one or more of the claims 1 to 18.

38. A computer program, characterized by allowing to implement the method of one or more of

10   the claims 19 to 36.

39. An object readable by some way characterized by containing any of the computer programs that are referred to in claims 37 to 38.